

11. (Twice amended) A method for muting expression of an endogenous gene in a cultured population of animal cells, the method comprising the steps of:

(a) identifying a muting nucleic acid composition having a sequence that is homologous to a sequence in the endogenous gene, the nucleic acid being double stranded or non-complementary with respect to mRNA associated with the endogenous gene; and

(b) delivering the muting nucleic acid into the population of cells under conditions devoid of a selection for integration of the nucleic acid into a chromosomal site, so that expression of the endogenous gene in the population as a whole is inhibited even though such gene's sequence is not therein disrupted.

13. (Reiterated) A method according to claim 11, wherein the nucleic acid is selected from the group consisting of DNA, RNA, and a nucleic acid analog.

14. (Reiterated) A method according to claim 13, wherein (a) further comprises the step of engineering the nucleic acid into a recombinant vector.

15. (Reiterated) A method according to claim 14, wherein the recombinant vector is a plasmid, a phagemid, or a virus.

16. (Reiterated) A method according to claim 15, wherein the vector is a preparation of double-stranded DNA plasmids.

sub C³ 17. (Twice amended) A method according to claim 11, wherein the muting transgene sequence is homologous to an endogenous sequence comprising a portion of the endogenous gene selected from at least one of the group of: a 5' untranscribed portion, a transcribed coding portion including introns, a 3' untranslated portion, a 3' untranscribed portion, and a portion that overlaps adjacent ends of at least two portion of the endogenous gene.

18. (Amended) A method according to claim 17, wherein the nucleic acid comprises a sequence homologous to an endogenous sequence located in the 5' portion of the endogenous gene.

22. (Twice amended) A method according to claim 17, wherein the muting nucleic acid comprises a sequence that is homologous to an endogenous sequence located at the 3' portion of the gene.

23. (Reiterated) A method according to claim 22, wherein the 3' portion of the gene includes an untranscribed portion and a portion that overlaps the 3' end of the coding portion.

24. (Twice amended) A method according to claim 11, wherein delivering the muting nucleic acid in (b) is selected from the group of: transforming, transfecting, electroporating, infecting, and lipofecting the nucleic acid into the cells.

25. (Reiterated) A method according to claim 24, wherein delivering the muting nucleic acid comprises infecting the cells with a genetically attenuated preparation of bacteria or viruses.